

293-324.

ALWAYS BRING THIS BOOK.

M. H. G. Dyar

IN ACCOUNT WITH

WILLIAMS & TRAVER,

DEALERS IN

FINE GROCERIES

AND

Imported Delicacies,

RHINEBECK, N. Y.

YOSEMITE, CAL.

H. G. DYAR,

1890

March 29	1/4 lb Tea	1	50
	1 7/4 Hays	2	42
	1 Pair Lard		55
	1 Bar Potatoes		80
	10 lb Sugar		75
	1 R B Powder		45
	1 lb of Apples		10
April 2	2 Brooms		40
	2 Whisk Brooms		30
	1 lb Blk Tea	1	00
	3 Coffee	1	05
	1 Coffee		40
	5 Cans of Flakes		30
	5-1/2 lb Meal		15
	10 C Sugar		65
3	1/4 lb Pepper		08
	1 lb of Apples		15
	1 " Apples		15
	2 of Apples		04
	1/4 lb Mease		40
	1/4 lb Sugar		07
			<hr/> 122 3

Oct 5-10 th Car-Legger	85	
5 th P-Legger	43	12
1 Can Apples	35	
4 th Prunes	66	15
8 th Butter	2 00	"
1 st Lard	30	"
1 Can Syrup	1 25	17
2 nd Lard	36	
1 Can Cheese	1 10	
1 st Macaroni	18	
2 nd Macaroni	20	
10 th 2 nd Beans	20	19
" 1 Pair Lard	2 00	
" 1 st Lard	75	
" Lard	40	
" Canned Apples	25	23
" 4 th Apples	40	
11 th 6 Can Lard	90	
" 1 st B. Prunes	45	
" 1 st Apples	10	
" 2 Can Apples	60	
	13 87	

1 st Lard	05
Bot Vanilla	1 00
P. C. Shrub	10
Bot Oil	90
1 Raisins	14
4 th Lard	20
C. S. C. Myle	36
P. Shrub Prunes	08
C. Butter 25	1 50
3 rd C. Lard	58
1/2 Bu Potatoes	63
1 Mutton	65
3 rd Lard	15
1/2 B "	05
4 th Oil	56
Lard	1 00
5 th Lard	1 00
2 Can Apples	70
1 st B. Prunes	45
1 Epps Cream	25
1 st Lard	6 50
	16 85

Apr 28	2 Rice	20
"	Sack Salt	10
"	2 Butter	46
30	8 Sugar	48
	1 st C. Flour	10
	1 Can Apples	35
	1/2 C. Lard	30
	1/2 Can Potatoes	50
	1 Copper	35
	1/2 Copper	20
	5. Raisins	40
	6. Lemons	15
May 1	2 Butter	46
"	2 Baking Starch	60
5	5 Oat Flakes	30
"	3 Butter	69
"	140 lb Beans	1.54
8	8 y Corn	10
12	3 Butter	69
	Can Apples	35
		832

	1 Pine Apple	65
14	1/2 Can Potatoes	30
	1 st B. Potatoes	45
	6 Can Apples	21
	1 st Iron	100
	5. Pol. Sugar	40
	8. Grapes	20
20	10 y Lard	650
	1 Rec Potatoes	100
21	Can Apples	35
	5. S. A. Meal	30
22	Can Maple Syrup	125
24	5. Cut Sugar	40
"	Can Apples	35
27	2 Pgs Toilet Paper	40
"	100. Powder	45
"	5. Sugar	33
"	3 1/2 Castles Soap	81
28	2.25 Beans	24
"	1/2 Eggs Cocoa	25
"	2.1 Meal	05

29	Pg 4 Cakes	10
31	Bot H Raisins	20
"	Stone Polish	8
"	Can Apples	35
Jun 1	5 A Minc	30
	5 Sugar	33
	2 Prunes	36
5	1 Pa C Starch	10
	PK New Potatoes	60
X	Pa Rice Flour	12
	5 Pd Sugar	40
	7 A Sugar	49
	7 Lr Sugar	49
	1 lb B Powder	45
	Bot Lemon	40
	Bot French Mustard	15
11	1 Lr Prunes	35
	5 Cud gum	50
	1 Cuckums	10
12	2 1/2 New Pts	13
		5 80

Amount due for June 73, 16

13	1 lb Pa Cakes	90
14	10 Lr Sugar	90
"	10 Lr Sugar	75
16	1/2 Gal Syrup ²⁵ + Can	36
"	3 Coffee mix	1 10
17	1 lb B Powder	45
"	1 Lr Apples	10

please receipt 77 525

June 19/90 (Merriman & Fran)

19	1 lb Sugar	1 9
21	PK Potatoes	45
"	Can Apples	35
"	5 S O Meal	30
23	20 Lr Sugar	1 50
"	20 Lr Sugar	1 40
"	C B Sugar	32
"	Can Lemon	45
"	2 Lr Apples	36

4.96

		4	96
27	20 ^{lb} Sugar	1	80
	1 ^{lb} Sugar		25
30	20 ^{lb} Sugar	1	40
"	3 ^{lb} Coffee		30
Sep 1	1 M Potato		35
"	1 M Potato		25
"	5-12 Lard		35
" "	3 Coffee	1	10
" "	5 St Oats		30
" "	1 Sugar		40
" "	Bacon Salt		10
"	Pine Apples		55-
10	1 ^{lb} B Powder		45-
"	2 Dry Pasta Noodle		12
"	1 M Flour	6	25
12	1/2 P C Sugar		10
"	2 c Raisins		40
"	6 Cut Apples		45-
14	1 ^{lb} Macaroni		15-
	Total	19 92	\$19 92
		19 57	
		3 5	Oat
			mount frame

July 30	1 bag Lemon	35-
	Pail Lard	55-
	1 lb Royal B Powder	45-
	5- Pd Sugar	43
	Pa Mague Yeast	10
Aug 1	6 Lemons	18
	5- Q Mue	30
	5 th E C Sugar	33
	5 Sugar	30
	1 st C Mue	10
	1 st Lard	90
	1 st Lard Coffee	25-
	2 Mue	76
9	1 bag Sugar	35
	Lard Lard	10
	5 P Sugar	40
12	1/2 White Pepper	04
"	2 nd Sugar 6 1/2	1 32
	1 Mue	40
		110 98
	Paid Aug 15 th 90	17 87
	William & Irene	

1.40
 14.30
 1.25
 16.95-
 10.92-
 27.87

Aug 15	4 Cnt Sugar	32
	Bt Tarrh	25
	Pail Lard	55-
21	100 Cnt Mue	40
	3 rd Mue	13
	1 st C Mue	10
23	4 th Mue	12
"	2 Coffee 35-	70
"	1 st " 38	38
"	1 st Sugar	10
27	26 Bt Oils 55-	14 30
"	Bt Salt	10
30	2 nd Cnt Sugar	15
	10 E C Sugar	65
	1 st Mue	03
	1 st C Mue	10
Sept 2	100 Tarrh	25
Sept 3	1 B Powder	45
	2 Sugar	40
	3 Sugar	26
	5 th Sugar	38
		2203

22 03

10	2 Currants	20
"	1 Citron	30
"	3 St Oats	18
13	5 Indigo	38
"	6 Lemons	20
"	Bay Salt	10
16	1 st B. Pears	45
"	1 st Car. Lemon	09
"	5 th C. Lemon	35
19	2 Pears	40
"	2 Currants	20
20	20 th Lemon	1 50
"	1 Lemon	07
24	4 th B. Pears	18
"	10 th Lemon	40
"	5 th B. Pears	38
27	5 th Floor	20
"	1 st Coffee	18
Car 1	2 nd Floor	8
		27 87

Calc. .5 .8 1.4 2.3 (3.8) ratio .60
 Formed .45 .8 1.4 2.3 3.4

293

2 eggs together on back of leaf of wild gooseberry
 Yosemite July 3, 1891. Spindle shaped but of
 large diameter, the basal end much
 truncated. Some 20 vertical ribs and
 numerous slight transverse ridges.
 Color shiny yellowish white. Diam
 7 mm. vertical height 1.2 mm
Hatched July 7 Hd conical, black shiny,
 clypeus & antennae whitish. [Shield .45]
 Body on 3 & 12 a short brownish s-d.
 tubercle. C-shield divided into 2 separate
 elliptical patches which with the anal
 plate are gray. Body white, somewhat
 dotted with very minute piliferous black
 dots. Pili short, black. Feet normal black
 Late C-shield, anal pl. & s-d tubercles on 3 & 12, black
 as the stage advances a blackish transverse
 stripe appears in the middle of each segment
July 12 Hd whitish green ^{shiny} the clypeus
 bordered with black & 2 other black bands
 // with this A, the first over ocelli and

Feed milkweed

crossing central suture below vertex, the
second from vertex to occiput. ^[Sh. hd. .8] W. .9 mm
C-shield zone, anal plate small, black
minutely pilose; on 3 & 12 a pair of
small black fleshy processes there on 3 the
larger. Each seg. with 4 annulets
Body white, second annulet black, the
last pale yellow. Feet all black: very
minute black pile over the body.

Molt July 15 Hd yellowish white with the 3
black lines as before. ^[Sh. hd 1.4] W. 1.4 mm. Body
as before but no pile except on anal plate
Each seg. is narrowly black ant., then white
then a broad central black band narrowly
white. Head first yellow. Horns on 3 are
1.2 mm long, three on 12 .6 mm, ^{Feet black} black.

Molt July 17 Hd ^{yellow with black line as before} as before W. 2.3 mm ^[Sh. hd 2.3] Body much
as before, on each seg. as follows yellow
(in fold), narrow black, white, broad black;
white, narrow black, yellow (running into
fold). Fleshy horns on 3 are $5\frac{1}{2}$ mm long, three
on 12 are $2\frac{1}{4}$ mm long. Feet all black.

→ pupa becomes uniform green with 12 gold
dots viz, on eye, leg base, cell of wing case, base of
wing case, thorax, laterally 1 post., Band on 1
granulated ridge yellow edged ant black

Molt July 19. (12 noon) Head yellow, banded
with black as before W. 3.4 mm Body as before
but the black bands are somewhat broader
and the intersegmental yellow bands are
twice narrowly broken by black lines in the
folds. Horns of 3 are $9\frac{1}{2}$ mm long, on 12, $4\frac{1}{2}$ mm
A white spot on black ground at the base
of each foot, tentacles black. July 22 (10:55 AM)

Pupa July 23 (7:45 AM) Cylindrical, old eggs.
much contracted, motionless, tho. only
slightly enlarged with 4 small rounded
prominences at its post edge, one before
each eye & one at base of wing case. An
elevated transverse ridge on the 2nd abd.
segment, ^{post.} Color light green shiny, the
elevations tinged with yellow as are
the appressed interseg. incisures. Elevated
ridge granulated & edged with black
in front. Cremaster with a spot above it
and several spots below it black.
Length 25 mm. width 9 mm. Later the
Imago July 30 ♀ *Danaus archippus*

294

A. Musca on *Rhamnus*? Ypsenite July 3, 1891
 Hd small round retractile, eyes black mouth
 horn W. 1.2 mm Body flattened sq. incisions
 deep especially dorsally. In dist. s-d
 ridge but a decided s-v one. Thorax
 rounded, C-shield irregularly quadri-
 lateral, depressed, smooth. Color the
 body is reddish. Body densely but
 minutely pilose, the pile brown. Color
 velvety green with a reddish tinge
 (pupation?) the only mark distinguish-
 able being an obscure orange yellow
 line on the s-v. fold. Pupa Ths. small,
 abd. large, bulging, flattened ventrally,
 color almost black especially the wing
 cases on the back mottled with purplish
 all minute pilose, the pile brownish
 L. 9 mm Width max 2.5, of abd 4.5 mm

A. Smaller on *Rhamnus*. ~~Head~~ d & s-v line & oblique lateral
 lines. s. wide ~~up to~~ converging just to s, near together.
 obsolete by 11. Rounded, pilose. L 6 mm lines below surface

July 6
1891

295 = 289

Little larva on poplar, Ypsenite July 3, 1891
 pupating. Hd blackish testaceous, whitish
 above the mouth. [Sh. hd. 3] W. 3.3 mm. Body greenish,
 with black warts bearing long stiff black hairs
 C-shield & anal plate blackish. On 5,
 8-9 & 12 a diffuse brown patch.
Molt July 6? Head bilobed, brown black, shiny
 a whitish line each side clypeus and
 labrum white. [Sh. hd. 5] W. 5 mm Body greenish white
 the warts large & black but smaller on 11
 Hair bristly black, overhanging head but
 very scarce, almost absent on joint 11 (see B289)
Molt July 12 Hd bilobed, black & shiny, an
 oblique line each side clypeus, labrum &
 antennae white. W. 7 mm Body whitish,
 shaded with black, but bearing a dorsal
 & broader s-d. line of the ground color. Hair
 dense, long, but almost entirely absent
 on 11, black & white mixed, a dense black
 s-d. tuft on 5. Ths. feet black, abd feet
 s-v. space & j. 13 white. [Died soon after molt]

Still present.

Cael 4 .6 .9 1.3 1.8 (2.2) 2.6 ant. 7
 Found 4 .75 1.1 2.6
 (See 343) *Spilosoma natalis* Pack?

296

Little *Spilosoma*? on lupinus July 3, 1891

III pale yellow, eyes & mouth brown W. 4 mm

Body ^{pale} greenish yellow, hairs whitish, warts

brown. Length 5 mm

July 6 Hd as before W. 6 mm Body tinged with blackish but leaving a dorsal pale line warts blackish, hair long, pale. [Sh. hd .75]

IV? ^{Same as 1.7? or 2.2?} on a poplar Hd blackish ocelli black, W. 2.4 mm Body gray (black mottled on a pale ground) a dorsal l.s.d. yellowish line. An orange spot before wart ② on 11. Bristle mostly of even length, some longer, warts pale, hair black & whitish.

July 10 Head 1.1 Same as before. ^{July 12} W. 2.6

July 15 Hd. frey red, black on the upper part of the clypeus and lower 20 around it ocelli black, antennae pale. W. 2.8 mm Body black, somewhat paler below the spiracles. Warts ①-③ black ④-⑤ very pale spiracles white. An orange spot before wart ③ on 11 and 12. Hair from ①-③ black, from

B-G fony red. Feet all fony red. A faint
pale s-d line. Body blackish below.
Hair spinose-like, of irregular lengths
(another hd 2.6 like the above)

One coonad but did not pupate. ^{not very thick} Coony hair

Pupa flattened a little on ventral side, and
slightly tapering, thorax rounded, a slight
depression bet. it & abd. Anomalous short
thick furnished with many thick stiff spines

Uniform dark red brown L 16 W 6

297

Noctuids on lupine & wild currant hd and
green, ocelli black. W 2.5 mm. Shiny.

Body green mottled with white, a ²⁶ faint
d. white line, trace of s-d in segregation
of mottling. Dist. but narrow ⁹³ s-d
line, below spiracle on 12, into anal
fur. Spiracles black ringed. Pil. dots
not distinct. Another smaller, hd 1.6 mm
Pil. dots white, s-d line more distinct
Lateral pale brown spaces mottled with
black. Hd brown reticulated with dark
brown. Anal pl. & c-shield dark brown
the latter edged in front with black. The
mottling give appearance of oblique seg.
shades. Pil. dots black, some surmounted
by white.

Donago Sept 11, 1891 Cat. no. 6813

Hadena evelina French

298

Skiffes larva on lupine Head bilobed, the apices of lobes pointed, roughened, pilose. uniform non-lustrous black. W. 1.9 mm no shield. 2 concolorous with body. Body yellowish green covered with little yellow granulation which seem to segregate to form a s.d. line. Feet all concolorous.

299

Noctuid! on Endomys-bean Yemasite July 7, 1891
Hd. white with 3 curved geminate vertical brown lines ^{on each lobe} continuing the lines of the body a brown vertical streak in clypeus. Mouths antennae white; a few hairs. ^[Shield 1.2] W 1.1 mm Body cylindrical, slender very much like a leaper & larva has all the motions & attitudes of one except perhaps the stick. The legs on 7 are absent; on 8 the aneural rudiments without hooks; on 9 & 10 present, well developed, as also on 13. Yellowish white with 3 brown geminate lines on each side, the enclosed spaces somewhat darker, & a single slight dorsal line. On the venter is a median ventral brown line & two geminate lines each side of it, like those above. Legs pale except those on 9 & 10 dark brown enlarged into a patch on joints 7 & 8 (where no legs)
Molt July 13 Legs present on 9 & 10, on 7 only a slight bulge but no traces of legs, on 8 a small pair which seem to be used. Body colored as before except that

the legs are not brown but concolorous with the body - yellowish streaked with brown. The brown ventral spots are present on 7 & 8 that on 8 just ant. to the little legs.

(Died)

Send extra to Miss Hall!

88300 Pupa much as in asterius, long and rather slender, a thick strong and somewhat angular. **H. G. DYAR**
S. T. BURBANK, C. L. eye and one on thorax centrally; a slight prominence at base of each wing case; 4 small rounded prominences on each side of the abdomen. Cremaster very broad, flattened, short. General color pale wood brown, darker on the head, brown across and slightly streaked with black; a faint bluish rated shade. Length 31, width 8 mm.

Calc. .63 .97 1.5 2.3 3.53 ratio .65
Femur .65 1.0 1.5 2.3 3.5

Apod 10/28/91

det. by Prof. J. W. Congdon through the kindness of Miss F. M. Hall of Waukena, Cal.

H. G. DYAR
S. T. BURBANK, C. L.
Eggs on flowers! of Lily-bulb-carrot. Yosemite July 7. Nearly spherical, black, flattened slightly shiny, black, smooth. Diam 1 mm. Hatched July 7 (Papilio?) Hd black, shiny with a few short hairs. W. .6 mm Body black crossed with rows of pale tubercles each of which several minute hairs. A pale dorsal patch on joints 7 & 8. C-shaped pale As stage advances the color becomes brown. Molt July 12 Hd. rounded black & shiny, labrum whitish. Many fine black hairs. W. .9 mm Body black with 3 rows of conical tubercles bearing short bristles, all black except those on 7 & 8 which are white at base; some irregular lateral white spots on 7 & 8. Bases of 3rd row of tubercles slightly orange tinted especially the one on 12. Feet black. As stage advances the tubercles become surrounded with reddish at their bases. Molt July 15 Hd rounded, black shiny, labrum whitish. a short inverted V-mark and

J. July 26

Chrysomelid **H. C. DYAR**

on top of the clypeus and round spot over the
3 NT B RB RA, C.L.

Antennae whitish at base. ^{small} Body
has conical tubercles with ^{small} spine
as before but the s-d one the largest, the
other very reduced in size. ⁸ Shaded above,

and ant. part of 2 a slit for the orange tentacles
now faint ^{cheeked on side} ~~observed to be protruded~~. 2 wh. dots
in front of it. ^{9 body} Color velvety black, slightly
paler ventrally, the s-d tubercles on 7 & 8

with a patch below them bases & 2 supra-sty
dots white as well as a supra-sty dot
on 10-12 each. The bases of the s-d and
small sub-sty. tubercles are broadly ringed
with orange. Tubercles ③ next d. are small
③ s-d large. ③ lateral ③ sub-sty. dots
small. ③ very small along base of legs.

Molt July 17. Hd round, shiny black, a yellowish
inverted V over the clypeus, a narrow white
short vertical mark above the eyes. Labrum
base of antennae & 2 short streaks on the
base of the clypeal antennae white. ^[sh. lid 2.3]
^{aetiferous}

Body velvety black, the tubercles present

~~are not present~~ ^{on central}
~~ridge~~ ^{ridge} 2 black dots above the base of each leg and
a black spot on the foot. A ventral ^{black} spot
2 yellow dots before horn ant. 2 on feet ^{yellow}
but ^{black} **H. C. DYAR**

S NT B RB RA, C.L.
Around & above the base of s-d tubercle, above

the lateral ones, and occupying the place
the sub-sty. ones are a series of round
reddish orange spots, pale yellow at ^{joint}

The body is also much spotted with
white as follows, a row of small dots, a row
of irregularly shaped lateral rounded spots
thick & confluent over the side of 7 & 8, and
quite numerous on 10 & 11; a ^{large} spot above the

base of each foot, corresponding on the
legless legs and a streak above anal plate
~~body enlarged 2-6, otherwise nearly uniform~~
~~head feet attracted as in Papilio~~

The feet black, abd. black, clasps white. Long
yellow dots before the slit for orange ^{ventacles}.

Molt 5-20 Hd green tinged with yellow above the
clypeus. 2 vertical black bands are
on front edge of head the other from jaws, before the
antennae to vertex ^{of lobes} ^{near the} a black spot
over the ocelli; a black spot centrally in clypeus.
labrum ^{black green} ^{as at 8} ^{labial} ^{antennae green}
w. 3.5 mm. Body pale green, the tubercles all ^{marked}
the s-d ^{only} represented by slight ^{prominences}
a black intersegmental "transverse" band and one
across the middle each seg. the latter interrupted by
3 orange round spots on each side representing the
obsolete tubercles. On 2 ^{the} ^{small} ^{plate} they ^{are}
absent and on 3 very small, more dots. ^{abd}

Calc. I 7.9, (II 1.13), III 1.62, IV 2.31, V 2.7,
VI 3.3, (V' 3.9), VII 4.7. ratio 70, r! .83

Found **H. G. DYAR** 3.2
Group June 17, 1892 Citrus 2016 *Nadata brendani*
YOSEMITE, CAL.

Little Planycid? on oak (deciduous) July 2, 1891

2 ^{III} large, slightly bilobed, narrowing a little
to vertex, flattened in front; pale green
shiny, mouth white, ocelli black W [Sh. W 1.4]

Body slender, smooth, no perceptible hairs
legs normal. Green, somewhat shiny,

a broad yellowish green s-d line. Spin-
acles black. Feet concolorous.

3 ^{IV} July 16 Hd large, very slightly bilobed,
flattened in front. Pale green, not shiny
ocelli black, mouth white. W 2.0 mm. [Sh. W 2.2]

Body slender, uniform green. A very
distinct, rather broad pale yellow s-d
band from 2 to anal plate. Spinacles
black faintly surrounded by yellowish,
scattered very small & short hairs.

4 ^{IV'} July 23 Head large flattened in front,
very slightly bilobed, smooth, not shiny
pale green. ocelli black, a few hairs W 2.7 mm. [Sh. W 2.7]
Body annulated, leaf green, with yellow
puffball dots being very small & scarce

On c-sh. & ventral transverse striation white
streaks. 2, and 10th abd segs leaf
green. **H. G. DYAR** (213) (note in case of)

5 ^V July 18 A slightly dark **YOSEMITE, CAL.** yellow s-d

line from 2 ant. to end of anal plate. Feet
concolorous. Spinacles black with small
white centers. Labrum white, jaws black, ^{at ends}

6 ^{V'} July 18 Hd slightly bilobed, narrowing to
vertex, pale green, not shiny; ocelli black
on white ground. Labrum white, ^{at tip} jaws black




antennae yellowish. W 3.2 mm. Body yellowish green with
irregular yellow granulation & a distinct yellow
s-d line from 2 to basal plate which is
rounded & spiracles ^{dark brown} faintly green.

without yellow spots. ~~Transverse~~ ^{transverse} black
& edged narrow yellow in front. (head)

7 ^{VI} Clypeus small, triangular. Red as above
s-d line faint on 2 ant. Spinacles dark
orange. The irregular flattened elliptical
yellow granulation are dense. Feet tipped





with yellowish. As stage adv. the jaws become
pale ~~whitish~~ ^{yellowish} white. ^{in some sp.} the body has a whitish bloom, the granulation
become whitish & the s-d line yellowish white
with yellow tinge ant; the edges of anal plate
and segs 2 remain yellow, ^{much orange red} edged faintly white



Poplar (Populus balsamifera) ✓
 Willow (Salix) ✓
 (Acer) ✓
 (Ceanothus integerrimus) ✓
 maple (Acer microphyllum) ✓
 chokecherry (Prunus demissa) ✓
 IX
 Jan 31 1892

Egg    on Poplar Yucca July 8
 Spherical but the base much flattened
 Smooth, sublustre (black when found)
 Color Diameter 1.8 mm.

[Larva 2 stage II] just chd. Hd. rounded, ^{slightly retused and ind. 2}
^{dark} shiny; brown, ^{pale over clypeus & mouth} ~~mouth~~ ^{mouth} pale,
 ocelli black, a few very short hair on lower
 part W 1.2 mm. Body (enlarged 2-5,
 narrower 6-10, short & rather square.)
 A shield broad, pale brown with a rounded
 minutely pilose process at each side.
 On 3-5 & 10-12 a series of 2-d. rounded
 shiny brown tubercles with smaller d.
 lateral ones on 4 & 5 - all others rudimentary
 Body smooth, non-lustrous blackish brown
 paler subventrally & below, joints 11-13
 entirely very pale brown. A dorsal white
 patch on 6 & 7 (slight on 8) running down
 & slightly forward at the sides. Feet pale
 Another hd. 8. slightly bilobed. black &
 shiny, sphenum & bases of antennae pale

Calc	.82	1.27	1.95	3.0	4.6	ratio .65
Found	.8	1.4	1.9	3.0	4.5	

    a large pilose tubercle each
 side of shield, & a s-d row of ^{similar but} smaller
 tubercles those on joint 5-9 much smaller
 than the others. Body velvety black with
 a white saddle on 7-8 and the cervical
 shield pale brown. Length 3 mm. (hid)
 Mol B July 14 hd rounded, ^{fully under} ~~fully under~~
 shiny pale reddish brown. ^{pale over clypeus & mouth} ~~mouth~~ ^{mouth} pale, ocelli
 black. W 2.1 mm Body enlarged 3-6,
 elsewhere of more uniform size. On 2 ant
 a stiff pen which protrudes the forked
 tentacles & on each side of it is a rounded
 tubercle; no c-shield. The other tubercles
 are rounded, smooth, much reduced in size
 The dorsal ones on 4 are brown, the 2nd
 & 3rd having a small blue dot above them
 & separated by a black line. The s-d on
 12 & 13 are colored whitish. The 2 & 3 on 3 &
 5 greenish, 4 on 5 having a blue dot above
 s-d on 9-11 very small, turquoise blue.
 All others nearly undistinguishable. Color
 rather dark green, very minutely dotted

with whitish shading into white S-V.
Ant.   2 pale yellow. On 8-10 a
white saddle as before and 12 & 13 white
dorsally. Feet all pale. Tarsus 3rd &
4th whitish bands. A few white dots
on the ant. segs. and on joint 13.

Molt July 19. Hd rounded, partly retracted, not shiny ^{fillicious} brown, whitish around the mouth
[a sl and s.d.] ocelli dark brown. W 3 mm Body enlarged 8-d
3-6, tubercles gone except short rounded ^{minuted} ^{paler} ^{dotted} prominences on 2 & 12. Dark green, whitish
at the sides & below; a narrow ^{transverse} yellow line
on 2 ant, covering s.d. prominences. On 4 a
marking in the place of the former tubercle
which are reduced to rudiments. a follow
a yellow dot bordered with black just below
a blue dot, a yellow pyriform yellow patch
covering ② & ③ bordered with black & divided
by a black longitudinal line below ② and
containing just above ③ a blue dot in a
black ring. On 7-8 the dorsal & lateral
saddle, creamy white and broken into
several spots. On 8-10 faint s.d. blue

♀ imago Jan. 31, 1892 Papilio rutulus

dots representing the absent row ②. On
11 a ~~red~~ creamy white mark on 12 a short
transverse band, covering small tubercle ③.
A faint whitish stigmatal line, In the
incision bet. 5 & 6 a black band edged yellow in feet
^{on willow}
Another same but saddle zone, dot in pygiform spot
violet, trans, whitish band on 12 faint & broken.

July 5 by 21. Head rounded, flattened in front, clypeus large
its sutures dark G, base of shagreened, with fine pile
pinkish brown, whitish on lower 1/3, ocelli faint
brown & part whitish; width 4.5 mm. Body enlarged
4x6, tapering to anal extremity. smooth, ventral tubercles
2 yellow and 4. Body smooth green, yellow dots obs-
cured. On 3, 7-11 2 d deep blue dots, ^{row 1} on 8.
On 5, 8-11 row 2. On 6-12 row 3. Base
6 black band yellow in front, in outline, 5 d - 5 d.
mark on 4 - 1. Δ yellow, black edged, pale
blue dot 2 & 3 rounded pyriform spot, edges
a little irregular containing a trace, black line
not reaching edge. ^{dark blue} spot in rather broad
black border. Exactly as in 307 except mark
on 4 is not true cotta, lower spot more rounded
not as pyriform (and so much divided by
the black line below) 2, dot blue, not violet, its
black border slightly narrower. The upper
dot too, appears more reg. Δ less elongate &
not rounded on the upper end, Length 4.6 mm.
But mark is variable the spots sometimes different
seen. ^{no true cotta} 2 and 3
Pupa same as 307 but by cases not green L 36 W 10

303- Calc .43 .62 .88 1.26 1.8 2.70
 found .4 .6 .9 1.2 1.8

304

Looper on wild gooseberry July 8. Hd lobes rounded, flat in front, white below, reddish at sides with some brownish spots. a black patch below the apex of each lobe, ocelli black, mouth solid whitish W 1.2 mm
 Lar. as geometrid. Hd. feet only on 10 & 13 on each seg. a row of low black smooth tubercles each bearing a rather long black hair; a dorsal & lateral intersegmental row of white patches & an oblique 2-d interrupted band the rest of the body finely mottled with black & white on a reddish purplish ground color; a black dorsal patch in the center of each segment thru. feet black. Pupa Mycacee provent round, abd cylindrical, slightly tapering cremaster conical with 2 divergent spines. Cases closed, also minutely punctured color blackish brown L 10. W 3 mm
 Imago July 25 C. S. No. 6724
Semiothisa granitata Guen

growing from the stem, no vent perceptible. Ever with a glass, but arranged as in the Arctiidae. 404 just below st. line & T. a little back of spine; 5 ant, 6 post of small on vent of legs seg. 1404 D 305 C. S. No. 6787 (see 303)

gregarious (ferocious) in tent on new leaves. Lar. on *Gaultheria* in a slight web over leaf. Hd round pale greenish shiny, ocelli black. Ant. 10. Pale greenish shiny, a few hairs. Thor. 1.8 mm. Body cylindrical, slightly tapering from middle to end. Dorsal, folded over legs, feet normal. Hairs few, long, white. Body yellowish green subtranslucent, a very faint yellowish st. line. Spines minute, ochraceous. Feet tipped with black. Cocoon of white web on back of leaf or between 2 leaves. One end flattened and opens like a vertical door. S. shaped tapering to other end. Opener in shape like hole, thimble behind back. Pupa cylindrical, tho. rounded, abd only very slightly tapering, the last seg. round cremaster none. Smooth pale whitish with a brown tinge and a broad dark brown dorsal shade the whole length. Length 10 mm, W 3 mm. Little one like mat. but a smooth, hair whitish curving backward, greenish yellowish. Hd. 6 of st. abd 1.0 mm, 1.2 mm, 9 mm (1.0 mm). Dead one had it Hd rounded partly under 2, a few hairs. Only apparently like mat. this hairs.

Calc. .23 .39 .65 1.1 1.8 ratio .60
 Found .25 .40 .60 1.1 1.8

YOSEMITE, CAL.
 H. G. DYAR
 July 31 1891

Physcides? eating the inside out of Linette
 leaves & making a little web. July 10, 1891

Stage Head shiny black: w. 3 mm Body cyl.
 c-sh. & anal plate black, fine black
 slightly curving forward.
 hair from minute black elevated spots
 larvae pale

Stage 3 Head slightly bilobed, shiny black
 [Sh. hd. .60]
 with a few hairs. W. 6 mm Body c-shaped
 & anal plate black, spined processes densely
 spined, and long, rows ③-⑤ black the
 rest short & pale. Body blackish on dorsal
 half with a black dorsal line, 5-v and
 ventral regions pale whitish. The feet
 black, abd. black. Processes as in Junonia

Stage 4 Head black & shiny W. 3.5 mm Body
 covered with branching spin or rather conical
 elongate tubercles with many bristly hairs
 Body solid greenish, shaded with black
 dorsally, the c-sh. anal pl. & spine black.

Stage 5 Head slightly bilobed,
 rounded, ocelli large
 mouth projecting
 a number of hairs Color shiny black

later germinate dorsal, 5-d, stig & sub stig
 line, not very distinct, formed of yellowish
 mottled H. G. DYAR

labrum whitish: hair black;
 Body covered with conical processes, .5 mm long

YOSEMITE, CAL.
 densely spined & arranged as in Junonia
 Body including c-sh. anal plate & spine
 all deep black, grayish laterally and
 subventrally the 4th row of spines and
 a stigmatal band running along the
 bases subtranslucent white. The feet
 and last pair of abd. feet black, the other
 feet much paler & clasper whitish.

[Molt July 16 shed hd .40, new head .60 mm.]

Molt July 18 Hd black & shiny, hairy, a whitish
 streak on the side of the vertex of each
 lobe. W. 1.8 mm Body black above, yellowish
 laterally with a faint germin. yellowish
 d-line. Conical spinous tubercles as in Junonia
 black ④ shiny yellow. Spines black,
 The feet black, abd. pale.

Pupa July 22 Suspended by cremaster, of usual
 shape, thorax not carinated but with 3 blunt
 points, and post rounded, carinae moderate
 prominent, a depression bet. the 2 abd.
 abd. strongly along ventral side, curved

dorsally with five ^{small} of short blunt
point representing the apex of the larva.
Cremaster flattened, rather long.
Near uniform dull horn ^{black} horn black
mottling on a reddish brown ground color
the dorsal tubercles reddish. A row of
white dots on antennae cases
and around border of wing cases. Length
12 mm; width 4 mm

Calc	.8	1.2	1.8	<u>2.7</u>	4.1	ratio .66
gd Oct 27, '91	.8	1.3	1.8	2.7	3.8	Buta VII

Nearly spherical, the ^{1st} lateral, smooth
yellowish green, very little shiny. D. 1.3mm.
A red shade appears on one side of egg,
making it look like a miniature ripe coffee berry.
Hatched June 16 hd. rounded, black shiny.

Later entirely velvet, black except the pale
brown - chest and white saddle.
Molt Feb 24 Head round, shiny, dark brown,
faint over clypeus & mouth; well black,
a few short hairs by lower part
~~of~~ ^{under} ~~the~~ ^{side}; w. 1.3 mm. Slightly retracted
Body *
S-d tubercles on 2, 11-13 rather long with
a few setae, all the rest smooth round.
Even sided, shiny. Color pale brown.

H. G. DYAR

mottled with darker brown, a white saddle
 on 8-10 pointed front & reaching down
 forward on the sides, pale subventrally,
 a whitish s-d line. 92 is yellowish
 & 12 & 13 paler than the rest of body. Below
 want ③ on 3, 4 & 6 is a velvety black spot.
 Body enlarged 4-6, elsewhere uniform.
 As stage adv. the color becomes green esp. 4-6.
July 28 ^{ad. imago} faintly tinted, pinkish
 brown, mouth pale, palpi black; width 1.8 mm.
 on 2 a s-d, other tubercles slight & spinose
 and a slight one on 12, all the rest reduced
 to slight, round shiny elevations. Enlarged
 at 4-6, elsewhere near uniform size.
 color dark green, pale at the sides, slightly
 shaded with blackish and minutely
 dotted with yellowish; on 7-9 a white
 saddle, excavated before & pointed behind
 passing slightly below the obscure broken
 narrow white s-d line, containing two
 faint dorsal green dots. 12 & 13 whitish.
 Tubercles ①-③ on 4 quite distinct, wide

H. G. DYAR

shiny dark brown, connected by a pale
 brown band. The s-d line runs between
 ② & ③ and just above it is a black bar
 and below it a minute blue dot
 encircled with black, no other blue dots
 but a blackish s-d one on 9. Elevated
 shiny dots, ochre or brown on 3, 5 & 11. Ant.
 edge of 2 yellow brown [sh. 4.2.7]
July 3 much as before; w. head 2.5 mm.
^{narrower} 2 and yellow, the tubercles each side of wing
 orange tinted. Body dark green, whitish s-v,
 only traces of saddle left in diffuse s-d.
 whitish patches & an arrow shaped dorsal
 spot on 9, ^{which finally disappears} on 12 & 13 a small yellow s-d
 tubercle. On 4 want ①-③ small, round, orange
 tinted; on ① below an elongate black sized
 patch & a blue dot; below ② a black line
 dividing a yellow pyriform spot that covers ② & ③
 enclosing above ① a black mixed blue spot.
~~all round~~ black ringed, no other blue
 dots, the places of absent s-d tubercles
 being slightly paler green than ground color

Imago Feb 8 1892 Cat no 6947 *P. angustula*
~~Imago like that on *Convolvulus* etc~~

to stig. light ^{absent} **H** **G. DYAR**
mized, in incision bet **RA** **C** black band
edged ant yellow anteriorly, concealed when at rest
S **IT** **B** **RB** **RA** **C**
Molt 5th B Hd rounded, sutures deep, minutely
mottled & covered with very short pile. Pinkish
brown, whitish around mouth, ocelli black
W 3.8 mm Body entirely smooth, uniform
whitish at sides, beneath
soft green, minutely dotted with yellowish
but obscurely. 2 yellow ant. around the
brown spot. The marks on 8 are without
range
tubercles, consist of a rounded ^{black edged} yellow spot
in black edge, ^{below} a blue dot, then a pyriform
spot, very slightly exserted in front & produced
on its lower post. side, divided above ^{the} middle
by a trans. black line containing a black spot
with violet center. ^{reaching lateral to lateral, - fused when disturbed}
In fold bet 5 & 6 black band edged ant. yellow
On 5, 9, 10 & 11, blue dots represent rows D & C
and 5-12 a S-stag. row of blue dots (Spinach
small, white, in a broad brownish border)
As d & lateral pale blue dot on 5 in front
of the transverse band. As st. adv. mark on 4
becomes terra cotta color, except the lower part
the pyriform spot which is yellow shaded & truncate

* 308

Spilosoma witatic? on ground July 11, 1891
Hd pale brown, a spot on each lobe, ocelli
& mouth blackish. W. ^{ish. hd 1.1} mm Body densely
spotted with black, especially s-d, on a
pale whitish ground. A broad dorsal
& lateral pale red line. Warts as in
Atracta, black, there rather bristly, black
but not very plentiful. Hid under leaves.
Molt July 13 Hd 1.7 Same. Hair from 12 very
long. Run fast.
Molt Aug 20
1st violet dot in broad black border
307 *Imago* **H. G. DYAR** Pupa Aug 27 Cylindrical
abd. tapering in depression bet 4th & 5th, a
blunt trifurcate thoracic process
forming 11 with a similar process over each eye
A slight lateral projection at base of wing cases
a row of s-d abd. granules elongate, three
of which are small dark brown, long &
studied streaked with olive brown, wing
cases grayish, a s-d line of deep ^{color} brown shaded
over the dorsum, continued as a broad shadow
to end of the projection. A broad lateral
similar colored band ^{extending the} whole length, differing
abroad shade on wing cases basal, black

35-40
the log cases

Calc. .67 1.04 1.61 2.47 3.8 ratio .65
 Found .6 1.1 1.7 2.4 3.8

H. G. DYAR

309

Aug 9 91

YOSEMITE, CAL.

- Phoebe on Poplar July 12, 1911. Hd slightly
 bilobed, mouth pointed; dark brown, shiny,
 mouth & ocelli darker; a few short hairs
 w. 1.6 mm. Body enlarged at 12 dorsally
 in a hump, feet normal. C-shield
 distinct, blackish as is anal plate.
 Small black piliferous dots on body.
 (4 seen ① & ② side by side ③ & ④ lateral)
 Body pale green, feet all black. ^{long} ~~black~~ at tip of.
 No process on 12, simply enlarged dorsally.
Ino B. A Eats down leaf & sits in the midrib.
 Hd rounded, pale green, not shiny, mouth
 antennae & ocelli brownish; a few short
 blackish hairs. ^[Sh. hd. 1.7] w. 1.6 mm. Body cylindrical
 a slight s-r. fold. J. 12 enlarged dorsally &
 continued into a process like a tapering
 horn pointing straight up, nearly 1 mm long.
 C-shield & anal plate not distinct, con-
 colorous with the body. Body ^{whitish} ~~pale~~ green,
 not shiny, an obscure yellowish stig.
 shade below which is a dark red

(See 68312)

YOSE

ROSE
d. Pa

H. G. DYAR

YOSEMITE

CAL

another had black very faint, almost
gone except at horn.

Some examples, palps almost entirely lack the
black ^{at apex} ~~at apex~~ ^{very shiny} ~~very shiny~~ which is
always present.
entire head & body becomes light purple
except the tho. feet which are red and the
anal plate which is colored as before. The
blackish bands ^{and median ventral band} remain ^{as the color of spiracles}
^{are} ^{does}

No setae distinguishable except on the anal feet
but very slight traces can be made out with a lens.
~~There are black spots on 3, 12 & base of abd. feet~~
~~2 narrow spots on central abd. feet separated by a black~~
~~line. Last pair of abd. feet orange centrally.~~
~~Because so shiny it reflected an image of this boy,~~
~~which looked like a white dorsal line.~~

Blue for pupation July 22 Entered ground & formed
hollow of pieces of dirt spun together with threads.
Cupa cylindrical, rounded at both ends
long in comparison with thickness. Uniform
shiny black, very much wrinkled.
Cremaster consists of ^{2 very} short spines, some
distance apart & projecting almost laterally
from the last seg. which overthrusts head
both sides well with considerable firmness.
L 26 W 8 mm ✓

Imago Aug 21 *Phaenicia rimosa*

310

Eggs on Poplar July 12. Hemispherical, base
flat. Covered with striae, many of
which do not reach vertex. Sublustrous
black; diameter .7 mm. (Flies)

~~line. Last pair of abd. feet orange centrally.~~

Another, shell on willow (hatched) under 1/2 in
a few minute reticulation around micropyle.
On sides very large vertical ridges, separately
as they pass down sides & others arise between
them, all crossed by very small transverse
ridges.

Pupa cylindrical abd rounded, its segs append
almost very short not hard & thick, with but
hooked cases, center of abd. segs. slender &
finely wrinkled. width 5 mm. Color dark
chestnut H 17 f 9 311

Raphia on poplar, Yosemite July 16, 1891.
Hd rounded, partly retracted and a
waney greenish white, scell heads. mouth
white, etc. min Body robust of many
uniform width, 13 absciss. intersp.
incisures deep. Body translucent clear
green with many yellow pitted dots,
on 3 the 4 dorsal ones tipped with red
other 2 central of these prolonged into short
processes very close together. On 5, 7 & 12 a
curved transverse yellow band reaching
to the first dot above the spiracle, whitish
anteriorly and those on 7 & 12 partly bordered
in front with crimson. Feet green, the
anal ones tipped with yellow & crimson.
Spiracles small, black. Dorsal dots 8 on
each side beside a dorsal row of non-
pitted yellow dots, looking just like the
others. Turned purple July 20. Corn of bits of stones
& dirt held with threads. very hard & firm.

Imago Aug 8. Raphia coloradensis (ms. 5784)

Looper on willows July 17, 1891. Hd held out flat
in line with a white & depressed, blackish
gray, a pale transverse line and broad mark
over top of clypeus. Body enlarged at 3 with a
8-d hump, bear a white tubercle. a small
brown small lateral hump on 6, slight dorsal humps
on 5-12 largest on 8 & 9 but of no great size
very small more on 10 & 11. Color dark gray mottled
indistinctly with blackish and dark brown
on some of the humps but no distinct
markings. Resembles very closely a dead
thing. (mottled) (dark gray 14)

Calc. .79 1.13 1.62 2.31 3.3 4.7 ratio 7.0
 .75 1.55 2.35 3.3 4.6

under 1/2 covered with very slight anfall
 1 obscure rounded depression but really almost
 smooth.

YOSEMITE, CAL.

Aug 15

Egg on oak Yosemite July 20, 1891. Rather more
 than hemispherical, base flattened, smooth
 not shiny white with a yellowish tinge d 1.2
 Hatched July 21 ^{hd} slightly bilobed, rounded
 shiny pale greenish with a few hairs ^{mouth}
 brownish, ocelli black. W. .75 mm. Body slender
 feet normal, no tubercles nor bumps,
 smooth shiny pale yellowish green. Setae
 minute rather long but not evident, blackish
 stage advances green with yellow sd line
 like inst. larva. Body unannulated, growth

molt 22 25 Head round, not shiny pale green
 as before; w 1.55 Body pale green, annulated
 with a broad sd line from 2 bordering annob
 plate. Spiracles black. [See BB 301]
 Sh. hd [2.0 2.0 2.3]

molt 28 Head 2.4 mm [Sh. hd 2.5] [Sh. hd 2.35]
 [Sh. hd 2.8 3.0 3.1]
 molt 1st Aug 1 Head 3.2 [Sh. hd 3.3] just like 301, 5!

molt 5 Aug 9 Head 4.6 full, rounded, slightly
 retracted in 2, obscurely shagreened, slightly
 shiny, ocelli black on white ground smooth
 uniform deep green
 parts whitish, same green black at v. (See 301)
 * not new head 4.8

Calc. .81 1.27 1.98 3.1 4.8 rat. .64
 Found. 2.0 3.1 4.4

of el ^{Nov 11 '91}
 314 *Hosackia grandiflora* ^{Benth}
 Eudamius ^{typus?} on bean of 180. Stage 3 ^{hd 2 mm}
 Hd large, rounded slightly bilobed, ^{bulging in front, d. small}
 lustre black, c-sh. large shiny black, 2 ^{with feet}
 red. Body green, minutely spotted with yellow
 & pilose, 12-13 yellow: obscure darker d line
 the feet tipped blackish. Faint blackish
 mottling, separating into very obscure trans streaks
 Stage 4/5. Hd shiny, rounded, bulging in front,
 rounded, ^{the same} small, pilose ^{small} sub-lustre
 black, ^{the same} ^{but} ^{and} orange spot above each antenna
 2 setae, c-sh. ^{smooth} shiny black, feet
 2 red, tipped with black. Body is brown but
 trans blackish mottled seg streaks are
 more distinct. Spiracles black. Body yellowish
 molt 1st 12 Hd large, rounded, slightly bilobed, covered
 with flattened granulation, dark blackish brown
 more blackish on lower half, a large orange patch
 above each antenna indicated by the ocelli W 4.4
 o-sh. dark shiny blackish brown, 2 with foot
 dark red, body pale green and dark pilose
 with obscure black mottling, that seems to
 separate in seg trans. lines. Spiracles
 black. ^{very common}. Feet yellowish
 Imago Feb 10, 1892 Eudamius californica H. L. L.
 cat no 6954

315

Sphinx on grape vine. Hd. spindle, slightly bilobed, clypeus large. Pale green, not shiny, mouth brownish. W. 7 mm Body normal, cylindrical, annulated with very minute hair. A very long, movable caudal horn (4.5 mm) uniform pale green horn black, forked at tip, minutely pubescent, brownish at base. Larva 9 mm
Molt 27 Hd same; w. 1.4 mm Body annulated, minute, granulated but c-shi & anal plate smooth; pale green, the granulation & a s-d stripe almost white. Horn long (6.5 mm) movable deep iron brown & covered with setae.

Molt 27 Hd much as before, not shiny pale green, ocelli blackish W. 2.2 mm Body pale green, covered with coarse pale yellow granulation which are close together in certain places & slightly confluent, giving the appearance of a s-d line 2-12, and a lateral oblique line on 6-11 each. Behind a

on each side & a small pale transverse crescent near the middle, & a soft black dorsal shade. Projected upward on 12, opposite the bottom. Papa dead from 4.1.92.

about 1/2 in a 12 above the s-d line to caudal horn, horn long (8.5) capable of very bent forward onto the back, a narrow & slightly forked at tip. It is madder brownish here at the tip and yellowish green at the swollen base. Wholes horn forward over back when disturbed 1-3 partly retractile and joint 4 enlarged. [Sh. 3.4]

Molt 31 Hd spindle, clypeus large, w. 3 mm Horn 12 mm, nearly straight, slightly curving forward with flexible enlarged base and can be bent forward over back, base as hinges. Hd dull purplish, deep uniform, partly retracted in 2, 4 large, 2, 4, 3 partly retracted beneath it. Body covered with brown tubercled yellow dots which on 1-5 are black ringed, a dark dorsal shade thin obsolete ant. & a narrow s-d yellow line from 3-12, faintly continued to anal plate & produced upward opposite the horn. Color purplish brown with a greenish shade on 4 & 5 a row of 5 oblique lateral bands passing over the spiracles, white edged with black which is blended into the ground color. The ones on 7 & 12 are faint. Horn purplish flesh color reddish at base & tip, constructed just at base & resting on the back part of apiculus elevated base, yellowish orange, encircled with black & containing a large black spot just anterior to the horn.
Molt 47 Hd same, shagreened, shiny, dorsal purplish brown; w. 5 mm. C-shi large, concolorous with head concealed when ant. segs are retracted. 4 enlarged 1-3 telescoped under it; 12 enlarged dorsally with circular elevated smooth shiny button in place of horn. Body blackish purple. Brown covered with small raised spots, blackish with whitish centers, a broad whitish s-d line spiracles white on 6-11. oblique white bands from just past spiracle to s-d line broken into 2 or 4 elliptical spots. S-d line black with a reddish orange longitudinal at base. Ant.

Calc. .47 .75 1.19 1.9 (3.0) ratio .63
 found .6 .8 1.15 1.9 3. ^{Feb 20} '92

316

Eggs like forkbeak on willow & poplar July 27 '91
 Slightly more than hemispherical, the base
 flattened smooth subventral black, under
 the glass ^{appears} very minutely punctured. Diam 1 mm
 under 1/2 in obj. covered with flat irregular reticu-
 lation which become very small at the
 micropyle. Between them the surface seems
 smooth with a few extremely minute punctures.

Hatched July 28 Hd round slightly shining, dark
 red brown, almost black; ^{a few short hairs} ~~clayey~~ smooth
 joints paler, ocelli black; w. .5 mm. Body
 smooth, of even width, a pair of s-d spinose
 processes on 2, the anal feet modified into a

pair of spinose stemapoda 3 mm long ✓ Body
^{shield very dark, small} blackish red-brown, feet & venter whitish
 two dorsal greenish patches, one on 3-5, the
 other 8-10, elliptical, diffuse at their ends.

On the body are six number of minute setae.
 Setae annulated with yellowish ^{at} ~~venter~~ ^{at} ~~venter~~
~~white~~ white just before the tips. Released
 threads black, whitish at base. Pupa
 (See after 310)

317

Apatela like 28289 (mounted twice before I observed
 any difference) on willow. Hd ~~behold~~ ^{behold}, chypers
 large, entirely shiny black; base of antennae
 whitish. W 2.2 mm. Body enlarged at 12,
 black, reddish ventrally. Vents & venter
 black; a distinct broad white subvent
 band, tinged with reddish narrowing at
 the center of each seg. & nearly broken by
 vent 5. Vents as in 289. Hair mostly

rather short, spreading from the trunk,
 whitish mixed with black, from ①-②
 on 5 & 12 thicker, black, but not plummed.

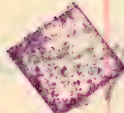
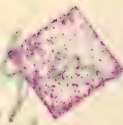


Inst 492 Hd shiny brownish black, pale in
^{labrum white} center of chypers, bases of antennae ocellish
 W 3.2 mm. As before but vent ① pale
^{grayer on 5 & 12} yellowish, with a few plummed pale hairs
 the other venter blackish venter. Hair
 black, mostly, thickened on 5 & 12.

Spinach white. Body brownish black with
 saty. band very broad bet segs, a row of
 velvety black dorsal spots bet row ①

Lined to coon Aug 21. on sticks with leaves
(and eggs - dried up)

old Jan 10, 1892

318 *Sluphisa*? 291?

Egg     ^{4th} *Poplar* ^{larva} *larva* July 29, 1891
Hemisphere al, base flat, smooth, slightly
shiny whitish green, ^{the} micropyle round, small
black, under the $\frac{1}{2}$ in. obj. ^{it is seen to be} covered with
irregular flattened actinulations, not
raised above surface of egg much as in
Carya but more irregular, ^{ranging in shape} from quad-
lateral to hexagonal. diam 1st mm.

Got another 291 mature and same
(except the spiracles are more
crimson than orange) on *Populus*
tremuloides at Keene Valley, N.Y.
June 29, 1894. Walked July 1
Is it *Sluphisa arimacula*?

Calc. 1.06 1.57 2.16 3.08 4.4 ratio .70
 Found 1. 1.5 2.2 3.1 4.4

H. G. DYAR ^{collected} July 31, 1891

Smearmitten of **YOSEMITE, CAL.**
 Yosemite July 29. Egg (hatched) elliptical,
 flattened above and below, smooth,
 slightly shiny, (green?), under the microscope
 covered with rounded minute shallow depressions.
 $2 \times 1.8 \times 1.3$

Stage I Head rounded, slightly bilobed, green
 slightly shiny, dotted with yellow but not
 granulated with ^{curved} yellow line from
 before eyes each side meeting below vertex.
 Antennae & labrum white, jaws & ocelli
 black, 2 mm. Body annulated, minute
 fine and dotted with yellow with a
 distinct pale yellow 5th line and oblique
 lateral line 5-12 occurring above & below
 the 5th line but dislocated except on
 12 where a single distinct line runs to
 base of horn. Horn annulated, pale, dark
 red, pale at base, 2 mm long.

Stage II Head 1.5. Like Prof. Henshaw's description.

Aug 24 Hd 4.4 Hd triangular but vertex
 obtuse, rounded, slightly constricted laterally

Taken back, not published
 Sep 11, 1893

Nov 20, 1892

and more regularly hexagonal. 320

Egg laid on branch not on leaf
 Took out egg on paper, little greenish July 1891.

Egg Like 316. Dark brownish black W 1.3 mm
 under glass the reticulations are more or less
 elongated and the spaces between them densely mottled
 black. The whole is more like the rest of surface, reticulation small.

Stage I Hd rounded, slightly shiny, dark brown, labrum
 blackish above W .6 mm. Body as in 316 but
 darker, almost black, the patches yellow.
 contrasting the ant. quadrate ^{on 4 only} the first.

elliptical ⁷⁻⁹ not apparent at their edges. 12 as
 dark as the rest of body. Tails twice annulated
 with whitish, dark at the ends. Horns, body
 stout spines. Head paler than body
 Hd feet pale but vertex & 1st feet dark.
 External limbs nearly black with a whitening

Aug 3

St. hds 2.2, 3.1

before vertex, subgreenish. Bluish green, a broad
 yellow line from base of antennae to vertex
 meeting there - jaws black, labrum reddish, ocelli
 blackish, antennae white. Body cylindrical
 annulated, with minute whitish granulations
 an obscure subdorsal & 7 oblique lateral

319 cont.

first 5-10 lines greenish ^{yellow} ~~white~~ except the basal which is ^{black} or 11 & 12 to base of horn. creamy white. Horn tapering, minutely granulated, pale blue, purple at base & green at tip, 4.5 mm long. Anal plate & last pair of abd. feet with faint yellow borders. Thor. feet reddish. Spiracles white with narrow black edge.

316 cont.

Mol 2 Aug 1 1911 1911 (sutures deep), slightly narrower to vertex; even red brown with a few minute yellow dots; w. 8 mm ^[Sh. hd. 8] Body; 2 ^{is} swollen to ^{the 5th process} ^{to 5th process} conical, thick, spinose; low rounded small setiferous tubercles, apparently normal in arrangement; anal plate & sternapods spinose. Bod. rusty brown with 2 dorsal elliptical diffuse patches of yellowish green, the ant. 2-6, the post. 8-10; s-r region & all feet pale whitish. Tails red brown at basal half, then blackish with 2 solid white annulations. L. 3.8 mm. As at. adv. ^{is} faint patch larger, joins s-r coloration & is obscurely divided by a brown dorsal line, ^{white} with the whole dorsal region become pale except 11. ✓
Mol 3 Aug 8 Hd higher than wide, rounded, ^{the upper 2/3} rectangular flattened in front; reddish brown, thickly covered with both round yellowish spots, but leaving a narrow line of the ground color on each side central suture above clypeus; antennae white; 10 + mm ^[Sh. hd. 1.15]
Bod. enlarged at 2, a pair of ^{beaving} red heavily spined processes; tails minutely spined; the ^{normal}

① & ② on 6 & 7 larger than the others

on the body ^{concentric}

~~on the body~~ ^{concentric} are conical tubercles, each with a short spine. ~~Body green,~~ shield colored like head; the horns ~~are red-brown~~ ^{body green,} their tubercles pale. A broad red-brown dorsal band, very narrow & nearly obsolete on 3 & 4 widening into an elliptical patch on 5-11 and inclining on 7 post., 8, 9 & 10 (and) a patch of the ground color faintly bisected by a brown dorsal line. On 12 & 13 the band is faint, only tinging these segments. Tails red-brown, twice annulated with green; L. 4.5 mm. ^{5 days after molt the marks had changed} (3 post.) July 13 body higher at 4; a red brown dorsal band began under a 2 covering the horns, narrower than on 8 at the highest point, rapidly widens & reaching spiracle on 8, then narrowing to a line on 12 & widely ^{again} covers anal plate. It is edged with yellow & contains on 6-9 an ochraceous yellow patch which is broken by a narrow brown dorsal line & the brown tubercles. The sides of the body are clear green dotted with yellow. The ant. annulation of tails yellowish green, the feet are yellow. Venter, esp. feet, whitish. J. 2 edged ant. yellow at the sides.

^{* Shaped} Bright f. 15 ^{as before}, median suture deep, colored ^{as before}, green on the sides post. mouth parts whitish; ^[See p. 1.2] w. 1.8 mm. a few piliferous tubercles; ^{* partly retracted beneath 2.} Prothoracic horns thick, ^{pointing forward,} covered with piliferous tubercles. All tubercles on the body are short, but bear stiff black setae. They are concolorous with the markings except ① & ② on 6, 7, 10 & 11 which are larger than the rest and blackish. Tails spines, ^{the spines} ^{use 11 & 12 point} ^{anteriorly at 3 post.} Body green, whitish 5-8 & below, markings as before except that the pale patch on 6-9 is more brownish and the anal plate is tinged with yellowish. Tails 5 mm. ^{2 days after the molt} ^{and 11} ^{where} ^{concentric dorsal patches, 11, on 2 & 3, triangular covering horns 12 on 4-11, gradually widening to spiracle on 8 & then narrowing to line on 12} (3) on 12 post. and 13, elliptical, covering anal plate. All brown with a pinkish tinge the central one blackish on 10 & 11 with a darker brown dorsal line and oblique lateral ones branching from it. All continuously edged with a yellow line. Sides green spotted with yellow. The central patch is slightly indented in each segment. ^{most Aug 21} Head rounded, higher than wide, clypeus small, depressed. ~~Ant. distinct & robust.~~ ^{Red-brown} the upper 1/3, except clypeus, covered with light round yellowish dots but being an obscure line the ground color each side median suture - yellowish with sides post. Mouth parts pale, jaw brown. Antennae yellowish - a few obscure hairs. w 3 mm. Osh large, horns short, rounded smooth without tubercles, pil-dots absent, setae short & fine, short. Tails spines, turned up at the ends. Body yellowish green, ^{pale} ^{yellow}, thickly sprinkled with a few punctures. (See p. 1.2)

321

Copied
Nov 1, 91

Schizura? on maize Yps nt Aug 2, 1891 Egg
 shell outline from lar lar, spheroidal,
 flattened at base, ≈ 1.1 mm. Ind. $\frac{1}{2}$ in covered
 with very narrow slightly elevated lines forming
 irregular pentagonal to heptagonal reticulations
 becoming very small at micropyle. Hatch by hole in side
 Larva 1st bilobed, rounded, very shiny blackish
 brown, yellowish at vertex; ocelli black; a
 few hairs; w. .5 mm. Body C shield with a
 pair of tubercles; 5 & 12 slightly enlarged
 dorsally, feet normal but anal pair elevated
 smooth, ^{rounded conical} tubercles, normal in arrangement, rather
 large & each with a long hair, many of which are swollen at the end
 yellow, hump & lateral region wine red,
 C-sh, anal plate, tubercles & anal feet
 blackish, other feet shiny black. ✓

2nd Aug 7 1st bilobed, high, narrow to vertex
 & flat in front; a tubercle at vertex of each
 lobe; w. .8 mm, uniform brown, not shiny, vertex little darker.
 Body slightly enlarged dorsally on 5 & 12, the
 tubercles very large, especially dorsally, conical
 smooth, each with a short seta, anal feet
 slender, partly abraded. Translucent and

under magnification to be swollen at tips.
 Body reddish brown, lighter mottled with yellow
 dorsally, 5 & 12 darker as are also the tubercles
 C shield & anal plate dark. A yellow dorsal
 spot on 4 & 11 directed by a brown d-line.

Dead Aug 12

later separated from 2nd patch and a greenish-ventral line part. no wider than on 4

316 cont not redifft
 with little whitish & brownish dots, spiracles sparse
 brown & a s-v row of brown spots corresponding
 to legs at apical & basal band ferruginous
 brown, consisting of 3 connected patches, first
 triangular, covering horns, on 2 marked like
 head, narrowing to a line at the elevators, at
 3 post, second, rapidly widening, reaching below
 spiracles on 8 & narrowing to a line on 11 post.
 retracted in the seg. suture, shaded with
 blackish brown around its borders & containing
 a darker dorsal & oblique s-d line besides
 brown dots representing the tubercles, third on
 12 post & 13, elliptical, covering anal plate
 largely replaced by whitish part. All the patches
 bordered by a continuous yellow line. Tail
 brown, green below at base & twice annulated
 with yellowish green; length of tail brown
 to stage advanced & dusky, slightly purplish, with
 dark brown streaks on the horn, intersected
 by a narrow yellowish line: patch 2 seven times
 retracted on its edge (in seg. incisions) darker than at
 first, the line obscured but 3 pale orange patches
 appear on each side just to the oblique line (in some
 these patches are larger or confluent) & are pinkish
 yellow. A purplish tint suffuses the dorsal patches
 then to a narrow reddish edging inside the more obscure
 yellow dots. Pink centrally between the yellow
 bands to corn Sept 1 (major) which is usual. Corn thin not
 thick cylindrical, slightly flattened ventrally, the
 end rounded, no carinae, shiny blackish
 brown, the cases darker, almost black, wrinkled
 and much less shiny than the abd. L. 14 W. 4.5 mm
 head

Calc. 1.1 1.6 2.2 3.2 4.6 ratio .7
 Found — — 2.2 3.2 4.5

322

Phormica californica ^{wild coffee}
^{wild blue}
Samia ceanothus on *Ceanothus integrifolius* Aug. 6, '91

Egg elliptical, much flattened above & below
 smooth, white, ^{not change} largely stained with a red-
 brown fluid which serves to glue the egg to a
 leaf. Dimensions $2.2 \times 1.9 \times 1.2$ mm. A little
 swollen at top. ^{almost smooth but} midrib in obj. covered with slight
 depressed rounded reticulations & minute punctures.

3rd Hd rounded smooth green, with a few
 short hairs; ocelli black; ^{& antennae 2.2} as 2.5? mm. Body as
 in *cecropia*, 2 rather small, rather larger than
 elsewhere 3-6 cylindrical, abd legs slender
 & black. There are of elongated smooth tubercles
 with a crown of radiating spines, 4-7 and in some
 a ventral one; ① S-d, ② lateral ③ 2-v and a
 fourth on 2-4 only, above bases of legs. on 12
 in place of ① a single dorsal tubercle, on 13
 but on, S-d & lateral, and a single pair on
 the anal plate. Rows ① on 3-12 yellow, all
 the rest pale blue, the spines black. Body
 uniform green, the feet yellow, tipped with
 black, abd feet tipped with yellowish.

Sprache small, white, narrowly ringed
 with black. Tubercles of nearly uniform size
 except dorsal on 12 which is rather larger.
4th ^{Aug 9} Hd rounded, smooth green, yellowish
 at vertex; antennae yellowish, black at tip,
 ocelli & jaws black; w. 3.2 mm. Body as
 before except that the S-d tubercle on 3-5
 and dorsal on 12 are ² much larger than
 the others which are proportionally reduced
 in size. Around the middle of each S-d
 tubercle 3-5 is an elevated blackish ring
 bearing a few very short spines. The large
 tubercle on 12 has 2 vertical spines. ^{besides several very short ones on its stem} Lateral
 tubercles on 3-5 rather larger than the
 other blue tubercles which are smaller than
 all the blue tubercles are black ringed at base.
5th ^{Aug 10} Hd smooth, slightly elongated, green;
 ocelli & jaws black; labrum & antennae
 tinged with brownish; w. 4.5. Body very large
 especially on 2 & 4. the head 2/2 partly retracted.
 On 2 tubercles ① & ② are reduced to small
 bluish, black ringed spots ③ on 2 and ④ on

2-4 very small tubercles, conical, bluish,
black ringed at base & bearing a few spines.

① on 3 & 4 large thick, and very long, with
short spines & a broad elevated black band
around the middle. ② on 5 & dorsal on 12
similar but slighter, the black ring broken
into several confluent elevated black spots.

③ 3-12 yellow, on 6-11 spiracle shaped
small, with no spines nor black marks.

④ 3-13 similar but white with a black
ring at base, those on 3 & 4 slightly spiracle
with small black spine the rest smooth.

⑤ like ④ but smaller, directed backward
& minute spine on the ones on 3 & 4. The

tubercles on anal plate are very small
bluish & black ringed. Body smooth, leaf
with a whitish bloom green, the feet all tinged with yellowish
their tips blackish. anal plate bordered
with a yellowish shade. spiracles whitish
with a very narrow black border.

Length ^{95 mm (ant. straight)} 75 mm (bunched) width 16 mm

another similar but with a trace of wing

There are little scars representing tubercles ② & ③
on the middle segs.
tubercles 6-11, on 3-5 ① normal ②

reduced to minute bluish black ringed
^{absent on 5} spots, ③ absent. On 12 the dorsal tubercle
only present. The spots on 2 and small
tubercles on anal plate are present as in
the normal form. *Etherea carne*.

Cocoon Found of silks on a twig like
that of *cecropia* in size, form & structure
Pupa. Robust but very short, abd. segs
abruptly tapering, almost truncate. cre-
aster a large rounded prominence
tuberculate but without spine.

abd. incisures marked. Antennae
cases large, covering half or more of the
wing cases, marked in the form of
antennae. wing cases coarsely wrinkled
color black, almost sooty, a brown
tint appearing on the abd. segs. post.
and ventrally. Length 27 mm; w. 19 mm
thickness 14 mm.

San Jose Feb 12, 1892 ♂ Col. no. 6960.

Attacus ceanothii

Calc. 1.1 1.6 2.2 3.2 4.6 ratio .70
 Found — — — 3.3 4.5

323 (See 38 344)
 (Arctostaphylos)

Pseudoeurygaster cglanternis? on Mangamita, top of
 female fall Aug 12, 1891. Hd rounded, shiny
 brownish black, with a number of coarse
 pale hair [Sh. hd 3.3] W 3.5? mm Body entirely sooty
 black, with traces of a dull crimson stig.
 line. Spiracles pale horn, clasp of abd. feet
 dull crimson. The spines are arranged
 much as in S. ceanottii but more numerous
 ① s-d, a single dorsal one on 12 and on 13
 just beside the regular lateral one of 13, none
 on anal plate ② lateral 2-13, ③ sub
 stig 2-13, ④ along base of legs on 2-6, 11,
 12 and 13 ant. (i.e. on thoracic & legless ^{except 12} legs)
 ⑤ consists of a dense bunch of dull yellow
 spines black at base & top ³⁻¹², the other rows
 have a distinct black shaft from which
 radiate many similar spines with ^{short} hair
 at the end of each. On the body are many
 soft pale hair growing from the skin
 & shield & anal plate shiny black.
 As stage adv. whole body very shiny black.

Sept 17 1893

Nov 5 Aug 20 Hd rounded, median suture deep
 in front, Clypeal suture double, many coarse
 pale hairs; shiny black, shaded dull crimson
 on clypeus. W. 4.5 mm. Body when first molted
 olivaceous narrow crimson s-d, lateral & s-v line
 but these becoming faint & ^{body} becoming uniform black, the
 feet tinged crimson. Spiracles white, with
 a black line centrally. Spines & hairs as before.
 the hair white, not long but quite thick.
~~Some~~ (Monterey) have the s line white, narrow & faint.
 s-d, lat. & substig, all broken, the substig.
 the most distinct and partly continuous.

Calc .47 .75 1.25 1.84 2.7 [3.9] ratio .68
 Found — — 1.3 1.9 2.6

Apple 324

Oedermaia on maple, trail to Snows, Aug
 12, 89. Egg shell, ~~translucent~~, but rounded
 at base, base flat centrally, smooth slightly
 shiny; under microscope ~~covered~~ with small
 hexagonal areas, their boundaries not distinctly
 raised and hardly distinct enough to form
 reticulation. ^{Over 100 in batch} D. 8 mm. Hatch by large hole in top.

Stage 1? Head rounded, higher than wide, narrow
 slightly to vertex. Frontal suture deep; a tubercle

before apex of each lobe: slightly shiny black;
 [Sh. hd 1.9] w. 1.8 mm. A slight dorsal hump on 5 & 12, post.

segs. elevated. C-sh. & anal plate black, the
 former bisected. Tubercles rounded, smooth shiny
 black, the dorsal ones especially on 5 elongated,

① next d-line, ② s-d ③ lateral, ④ sub-sty!

⑤ & ⑥ s-v, ant & post, ⑦ on ventr of legless segs

There are several supplementary black dots on
 the anterior segs. which make the arrangement

not normal; on 13 two pair of s-d & lateral
 & several ventral. Feet & spiracles black. Body
 yellow with s-d & lateral white line

In some the space bet. s-d & lat. became filled
 with white, divided by the brown line,

edged above & below with brown, distinct only
 6-11. [Specific enumeration of tubercles On 2, ① three
 on c-shield, each + hair; ② 1 lateral; ③ 2 sub-
 ventral, ant. & post. On 3 & 4 ① next dorsal post.
 ② s-d, little ant ③ super-lateral ④ lateral,
 small ⑤ 2 sub-sty in line ⑥ just below, ant.
 ⑦ above base of leg. On 5-12 ① next dorsal, ant.
 ② s-d ③ lateral ④ sub-sty ⑤ s-v and ⑥ s-v
 post. ⑦ on ventr of legless. On 13 ① 2 s-d, ②
 2 lateral ③ 1 s-v and ④ dots on ventr base
 3 on each half of anal plate & 1 on anal post below]

Stage 2 Aug 18 1st higher than wide, rounded, anterior
 deep, no tubercles but a few blackish hairs.

Smooth, shiny blood red, smooth parts and
 antennae black; w 2.6 mm Body yellow, slightly
 orange tinted s-v and a very faint red tint on the
 humps on 5 & 12. Tubercles elongate, especially
 ② on 3 & 4, ① & ② on 5 ① on 6-9 (gradually
 diminishing, those on 10 & 11 not especially long)
 and ① on 12, (① on 5 the longest, just as long
 as long as wide at base) very shiny jet black.
 A dorsal black line, germinate s-d, lateral &
 trace of s-v, filled in with white, all absent
 on 5 & 12 & slight broken on 2-4 and 13.

C-shield bisected, anal pl. & feet, shiny black.
 A blackish band along legs (broken by feet)

(As 3rd as in 1.9 stage, head 1.3. Each tubercle
 with a hair. length of larva 10 mm) Was
 at adv. faint brown line appear bet. d-c s-d
 s-d & lateral, and stig. the hump is rose red
 as, but on 12 yellow. later almost as dark as
 head

Entered ground Aug. 25. Coon spun at surface
of ground with pebbles closely over outside,
of white silk, but not very tough.

Pupa cylindrical, rounded at ends (not
formed till spring) Thorax smooth, with a
curved row of 9 vertical granulations behind it
^{to a double point with broad base & eyes}
abd. punctured centrally, smooth at the sides.
Antennae 2 short thick forked.

Imago Feb 5, 1892. Cat. No. 6935

23 Ademasia salice 2.54
Jan 27 18 1/2 Butter 1 1/2 2.59

Ademasia 28 1/2 Butter 1 1/2 3.99
or trifid in spring, 5 mm apart and extend as far
above the anal mark. Color uniform brown
rather light in shade L. 13 W 5.5 mm

